DOCUMENT RESUME

ED 255 101 HE 017 600

TITLE	The Canadian Higher Education Research Network. A Proposal to the Secretary of State.
INSTITUTION	Canadian Society for the Study of Higher Education.
PUB DATE	4 May 84
NOTE	33p.
PUB TYPE	Reports - Descriptive (141) -- Viewpoints (120)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	Computer Oriented Programs; Coordination; Educational Research; Federal Programs; Foreign Countries; Information Dissemination; *Information Networks; Position Papers; *Postsecondary Education; Program Proposals; Publications; Research and Development Centers; *Researchers; *Research Projects; *Teleconferencing
IDENTIFIERS	*Canada; *Canadian Higher Education Research Network

ABSTRACT

A network to facilitate research on postsecondary education in Canada is advocated by the Canadian Society for the Study of Higher Education. The network will link centers of specialization and individual researchers, and will use information technology to produce and disseminate research findings and to enhance communications. The network will contribute to the national objectives of federal programs that support postsecondary education, including accessibility, opportunity, mobility, employability, and official languages. Microcomputer conferencing will link scholars, researchers, and practitioners. Network programs will include monographs and discussion papers series, symposia, an electronic notice board, joint projects with other countries, and occasional feasibility studies. As a research organization, the network will have an independent board of directors and a small administrative staff in Ottawa to coordinate research activities conducted nationwide. Technical aspects of the network, including system and terminal requirements and cost estimates, are summarized. Also included are statements of the objectives of federal programs supporting postsecondary education, a list of possible monographs, and a description of the background of the proposal and recommendations of higher education groups. The April 26, 1985, announcement of the establishment of the Canadian Higher Education Research Network (CHERN) is attached. (SW)

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A PROPOSAL
TO THE SECRETARY OF STATE
FOR A

CANADIAN HIGHER EDUCATION RESEARCH NETWORK

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
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PREPARED BY

CANADIAN SOCIETY FOR THE STUDY OF HIGHER EDUCATION

FOR THE
CONSIDERATION OF
UNIVERSITIES IN CANADA

HE 017 608

May 4, 1984

EXECUTIVE SUMMARY

A PROPOSAL FOR A CANADIAN HIGHER EDUCATION RESEARCH NETWORK

This proposal is to create a network which will facilitate research on postsecondary education and will promote the effective use of the resulting information for planning and management. The Network will link centres of specialization and sets of individual researchers located anywhere in Canada. The proposed Network will exploit information technology to enhance communications, to produce and to disseminate research findings. The need for such a national body for higher education research has been recognized for many years, and the proposed Network will contribute to those national objectives of federal programs that support postsecondary education, including accessibility, opportunity, mobility, employability and official languages.

The Network is proposed as a research organization with an independent board of directors and a small administrative staff in Ottawa to coordinate research activities carried on in many locations across the country. An innovative feature of the Network is the use of microcomputer conferencing to link in a common workspace many scholars, researchers and practitioners across Canada. Network programs will include monographs (produced using telematic techniques) which provide background information, analyses and alternative policies and perspectives on significant topics on postsecondary education. Other programs are a continuing series of discussion papers (some electronic), symposia, electronic notice board as well as occasional feasibility studies. Network operations will be carefully evaluated and studied to determine the widest effective use of this networking technology in higher education.

On the basis of a five year plan, the Network would require $613,000 from the Centres of Specialization Fund. It is anticipated that after the second year, all Network programs will be funded from traditional academic research funding sources and from its own revenue.

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PREFACE

This proposal was developed by members of the executive council of the Canadian Society for the Study of Higher Education. It is a natural outgrowth of many Society activities over a number of years. The specific proposal of a national computer-based network of scholars exploits the potential of the new information technology to further some fundamental objectives of Canadian higher education.

In his National Universities Week address, Secretary of State Serge Joyal seemed to challenge the higher education community to bring forward ideas that would improve the information basis for postsecondary planning and management in Canada. The Society responded in its brief to the MacDonald Royal Commission. The following document elaborates that initial proposal by suggesting the formation of a Canadian Higher Education Research Network.

We encourage those Universities and other postsecondary institutions which share our enthusiasm for this network concept to convey their support for this proposal to the education support branch, Department of the Secretary of State.

Calgary, Alberta
1984-05-04

Bernard S. Sheehan
President

A PROPOSAL TO
THE SECRETARY OF STATE
FOR A
CANADIAN HIGHER EDUCATION RESEARCH NETWORK

1. PROPOSAL FOR A CANADIAN HIGHER EDUCATION RESEARCH NETWORK

The proposal is to establish, across Canada, a computer based network of scholars studying higher education. The Network would be operated by an independent board, employ a small staff, and exploit Canadian expertise in the information technology aspects of the Network. Network programs would stimulate research and facilitate dissemination of research results in traditional and non-traditional formats.

Scholars would access a common electronic workspace which permits the formation of teams of people in many different locations, possibly with widely different specializations, to work on topics or themes of common interest. The Network would enhance the teaching of graduate students. Practitioners in private and public organizations could help define important issues requiring study and, as participants in the Network would in return, see preliminary results, working papers and so on as these developed.

In order to access the Network, one would need a microcomputer equipped with the usual communications facility required by public telecommunications networks. The Network would fund certain scholarly programs of its own initially. Gradually, the Network would evolve more as a "public academic utility" which serviced and facilitated research activities funded from industry, governments and the traditional research funding agencies and councils in Canada and elsewhere.

2. OBJECTIVES OF THE NETWORK

1. To promote research on Canadian higher education.
2. To remove geographical separation and the lack of a "critical mass" of researchers in one place as barriers to excellence and productivity in higher education research.

3. To link researchers in Canadian universities working in many different academic disciplines so that they are encouraged to share their interests in the study of Canadian higher education.
4. To link researchers, graduate students, and teachers in postsecondary educational institutions across the country, together by means of a computer network with a view to increase the amount of basic research done in Canada.
5. To link telematically academics with practitioners in government departments, other institutions and industry so that current research results are quickly available, and to provide a means for researchers to sensitize themselves to issues seen as socially, economically and technologically important by various constituencies in the nation.
6. To exploit new information technology as an aid to research on higher education, as a means for gathering and maintaining data and other research results, and as a medium for the effective communications of information to support management and decision making related to postsecondary education.
7. To promote through specific Network programs, study and understanding of important issues in Canadian higher education such as accessibility, opportunity, mobility, employability and official languages.
8. To provide a vehicle to test the effectiveness of new information technologies as media in several aspects of postsecondary activities and services including scholarly communication, teaching, technology transfer, library and information retrieval services.

3. OUTLINE OF ACTIVITIES

The initial Network program is designed not only to contribute to each Network objective but also to provide the opportunity for people at many centres across Canada to participate in building the base of experience for intelligent Network evolution. Activities made possible by the Network are difficult to delimit. Telematics, that is, the new technologies of information, computation and communication is changing so rapidly, that almost

any set of programs possible today will not challenge the technical capability of these systems in even a year or two. Network programs will tend to be limited more by the imagination and creativity of the users. Hence, one would reasonably expect that proposed initial programs of the Network just set the stage for getting the Network into use across the country. Once people gain experience with Network capabilities, research and communication activities in support of Network objectives will, consistent with other phases of the "telematics revolution", rapidly develop.

The activities which the Network will immediately undertake are organized into six programs. The details of the specific activities will be developed by the Network on the advise of the academic community and others. However, the six programs can be generally described and illustrated by examples. These programs include: series of monographs on postsecondary education topics; discussion paper series; series of feasibility studies; joint projects with other countries; symposia, seminars, workshops and electronic notice boards; and, research services and tools, bibliographies.

3.1 Series of Monographs on Topics in Postsecondary Education

This Network program would produce a monograph on an important topic in postsecondary education, six times per year. These research based volumes are intended to provide background information on significant issues in higher education in Canada and to argue objectively on the basis of the research findings, alternative societal, governmental, institutional or even individual policies and their consequences. Each volume will be edited by a leader in the field. The guest editor for a volume will have the responsibility to bring together a number of outstanding colleagues with expertise on various facets of the topic and to provide the direction necessary to produce an integrated and powerful work. In the case of this project, a Network project steering committee will function much like an editorial advisory board whose chair will work closely with the Network director.

An important function to be included in this program is that of evaluating the impact of each volume with a view to shaping and focussing both editor-

ial policy and the criteria used to select editors and contributors.

Appendix 4 contains a brief description of 15 topics that would be considered initially by the project steering committee. These descriptions were proposed with the assistance of a number of experts. The initial list of possible monographs is:

1. The Structure and Governance of Higher Education.
2. Access to Postsecondary Education.
3. Patterns of Mobility.
4. Postsecondary Education and Canada's Evolving Labor Market.
5. Contributions of University Research to Economic Development.
6. Minimizing Barriers to Bilingual Education.
7. Distance Education: Past, Present and Future.
8. Assessing the Damage: Institutional Change.
9. Excellence in Diversity: In Search of a Strategy.
10. Retraining Needs of Part-Time Students.
11. International Role of Canadian Universities.
12. Analytical Support to Decision Makers.
13. Postsecondary Education in the Age of Telematics.
14. Teaching, Learning, and Academic Performance.
15. Articulation Between Colleges and Universities.

3.2 Discussion Paper Series

Initially, it is reasonable to expect that discussion papers will deal with topics that are similar to those treated in individual chapters in the monographs. Also, various collectives of researchers may use the discussion papers to help formulate and define their mutual fields of interest. For example, the Canadian Society for the Study of Higher Education (CSSHE) research interest groups could generate papers dealing with, 'teaching, learning and evaluation', 'goals and objectives', 'institutional governance and research', 'access and admission', 'education, employment and resource allocation' and 'student characteristics'.

Topics for the discussion papers will tend to match needed research identified by various authors over the past few years and compiled by Sheffield

(1981) for CSSHE and Social Science and Humanities Research Council of Canada. There is an extensive array of problems, themes and issues that urgently requires study.

In 1983 the Canadian Society for the Study of Education and CSSHE identified "Education for a Changing Society" as a subject of national importance and recommended that it be included as a thematic heading within the strategic grants program of the Social Science and Humanities Research Council of Canada. This recommendation has been accepted. Therefore, discussion papers will deal with subjects such as the relationship between education and work, the impact of information technology on employment, education and training, and patterns of access to education.

3.3 Series of feasibility studies

There is a clear need to increase the amount of substantive scholarly research on higher education in Canada. The existing base of research is limited and fragmented. Other Network programs will greatly improve coordination and linkages but may not solve the problem of a lack of substantive data and research findings in postsecondary education. There are vast areas (for example: the professoriate, student development and achievement, the community colleges) in which there has been almost no research in Canada. It is essential that the amount of systematic and planned fundamental research on postsecondary education carried on in Canada be increased. This series of feasibility studies will attempt to provide a consistent focus of effort and analysis to serve as a guide to other Network programs and, of course, more generally to the research done on higher education in Canada.

3.4 Joint projects with other countries

There are no particular reasons why the Network need be limited to the geographical boundaries of Canada. Canadians outside the country will be able to participate through international telecommunications. Moreover, valuable experience will be gained by including a limited number of individuals from other countries in Network projects, and indeed, in seeking

out similar networks in other countries and engaging with them in joint projects. The potential for providing assistance to developing countries through Network facilities is an important area of study.

3.5 Symposia, seminars, workshops, and electronic notice boards

Aspects of this program may be related, in part, to the monograph series. However, the technical capabilities of the Network for computer conferencing will make it possible, on an ongoing basis, to have both regular and ad hoc electronic 'meetings' of researchers across the country on topics chosen by the Network or the participants. The idea of a notice board or a continuous forum on specific topics, such as is employed in many campus electronic mail systems will, on the Network, allow researchers and practitioners to post ideas and opinions in the format of a public discourse in which any one on the Network may join.

3.6 Research services and tools, bibliographies

The primary emphasis will be on research services needed by scholars working with the new information technology. The experience of Network users will provide valuable and practical insights into the needs of scholars communicating through computer based networks. The Network also provides a ready laboratory to evaluate alternative Canadian solutions to the problems researchers face. This program could explore the notion of an electronic clearinghouse for postsecondary materials.

4. TECHNICAL ASPECTS OF THE NETWORK

4.1 Background

An essential feature of the proposed research Network is the use of microcomputer conferencing to link, in a common workspace, at least fifty nodes of scholars, researchers, students and practitioners of postsecondary education across Canada. Basing much of the Network's programmatic activity on computer conferencing makes it possible to involve individuals in all regions of Canada. (This is impossible when a research project is based in

a particular institution no matter how well-intentioned its organizers may be.)

The choice of computer conferencing also reflects the decision of the higher education research community to take up the challenge made in the Social Science and Humanities Research Council of Canada report on scholarly communication (Park, 1982). That report urged Canadian scholars to make much greater use of electronic and computer technologies in creating, communicating and publishing their work. The preparation of a series of monographs would be an ideal first application for the technology of microcomputer networking since, unlike the more ambitious project of publishing an electronic academic journal it:

- involves a limited number of people, most of whom can be identified in advance;
- does not require complicated protocols for 'blind' refereeing and acceptance/rejection of papers.

Finally, a feasibility study of the type of network proposed was conducted for three months in 1983 by the Coordinating Committee for Media of the Council of Ministries of Education, Canada under the leaderships of Kathleen Forsythe. In that study (Forsythe, 1983) some sixty participants generated some 300 interventions totalling 100 pages for a total cost, including communications charges, of $269 over a three month period. The study confirmed that computer conferencing is an effective and inexpensive technique for cooperative work. Its organizers concluded that the next step should be a longer term project in which experts would collaborate for a specific purpose. The present proposal defines a group of experts and provides a common purpose in the preparation of a series of monographs on issues in postsecondary education in Canada.

4.2 Modus Operandi for Research Projects

Researchers and scholars will log-on using personal computers with document processing and communications software, through local telephone numbers in all major Canadian centres.

The modes of access and password levels will be:

1. Ordinary reader - annual printed copy, or log-on with relational-search and read-only access to 'published' files.
2. Network member reader - as above but with the additional capability to append comments and references to 'published' files.
3. Contributor - as above but additionally private 'mail' to the Editor.
4. Reviewer - as above but with possibility of direct mail and synchronous typed conversation with contributor and editor.
5. Editor - as above but conference communication capability and is the one who 'publishes', assortments of articles by copying them from the private and semi-private review files into the public file area.
6. Typographer/compositor:
   - tidies up files to 'house standards';
   - redesigns graphics to standards;
   - chooses type fonts;
   - designs printed output format.
7. Evaluator:
   - appraises operations;
   - interpolates questions;
   - feeds back observations.

4.3 System Requirements

1. Direct local access in all major Canadian centres.
2. Capability of handling combined ASCII/NAPLPS (TELIDON) coded messages.
3. Conferencing and mailbox capability.
4. Multilevel password control of access to conferences and to the relational data base system.
5. Keyword and logical relation query-search capability.
6. Uploading and downloading of ASCII/NAPLPS files to users' personal computers.
7. Microcomputer off-print capability.
8. Hard copy printing and mailing capability.

9. 'Attention' auditing and statistical processing capability.

4.4 Terminal Requirements

1. Readers:
   - any terminal or microcomputer with 300 baud modem and NAPLPS decoder.
2. Members:
   - as above.
3. Contributors:
   - personal computer with text and graphics (NAPLPS);
   - processing software and mass storage; and
   - 300 baud communications modem.
4. Reviewers:
   - as members above.
5. Editor:
   - as contributors above.
6. Compositor/typographer:
   - as contributor but with more sophisticated graphics and font design system software.
7. Printer/micrographic publisher:
   - special output device access.

4.5 System Cost Estimates

The following capital and operating costs have been included in the proposed budget for the Network.

1. Capital costs

1.	qty 50 member/reader terminal (Canadian microcomputer with FORMIC videotex decoder software and communication board & modem) $1800.	$ 90,000
2.	qty ten contributor systems Canadian microcomputer with graphics tablet and page creation software (FORMIC or Micro-taure boards) $4500	45,000
3.	qty one typographer compositor system (Canadian microcomputer with graphics tablet font creation and page creation and editing software and communications hardware and software).	10,000

4.	Systems software modifications (special data base access and auditing software development).	20,000
	TOTAL CAPITAL COSTS	$ 165,000

2. Operating Costs

1.	Connect time for 50 reader/members at 4 hrs per week for (say) thirty weeks out of 52 at $1.00 per hr (I.P. SHARP)	$ 6,000
2.	Direct messaging charges (estimate) (I.P. SHARP flat rate anywhere in North America is about $1.00 per page)	6,000
3.	Mass storage charges (estimate)	5,000
4.	Printing out annual archival and distribution copies of 'published' files as a booklet and/or as microfiche copies	2,500
5.	Mailing costs	500
6.	Staff salaries (compositor and two research students)	24,000
	ESTIMATED ANNUAL BUDGET	$ 44,000

4.6 Evaluation of Network Operations

The feasibility study directed by Kathleen Forsythe made a useful beginning in identifying aspects of this type of expert conferencing by computer that would repay further research and evaluation. The present proposal includes an evaluation component, to be directed by Professor G. Boyd (Concordia). By studying the manner in which the Network is used in developing the monographs and in its other programs, the evaluator will provide answers to some of the questions raised by the Park report (SSHRCC) about scholarly communication via modern electronic technologies. Thus, given the rapid change in technology, the initial configuration of the network should be assessed at the time the Network is established, and continually thereafter.

5. ORGANIZATION OF THE BOARD OF DIRECTORS

It is clear that one would want to establish a prestigious Board that would guarantee the independence of the Network and at the same time be able to provide direction for the academic program as recommended to the Board by various project committees. Ordinarily, one would not think of the Board including "representatives" of particular constituencies. Such criteria may soon prove unmanageable. However, if there are organizations which are, in fact, national advisory bodies in higher education (Sheffield 1979 and Horowitz 1982), and these are at arm's-length from governments, then it may be argued that cross appointments to such boards with the Network board may be valuable.

The Board may consist of six to eight people but it seems reasonable to have an executive committee of three to work with the Network director or president.

The various project steering committees would essentially serve as advisory panels to the researchers and to the Board of Directors. Besides its utility in research projects, the computer network itself will be an important tool in the administration of projects and of the Network infrastructure.

6. INFRASTRUCTURE

The Network director would be a proven academic leader. It would be expected that the Network director would be a participant in one or more of the research projects and hence some of his/her salary would, after the initial start-up period, be chargeable to programs as well as to the infrastructure.

The role of the Network director will include fundraising, coordination of projects, and management of the Network office and Network systems.

There would be one full-time equivalent administrative/clerical person and at least one half-time typist in the Network office and several part-time staff maintaining systems. Project staff are not included in the infra-

structure.

There would be a budget for other Network office expenses.

There would be costs associated with space, furniture and equipment for Network office.

7. LOCATION OF NETWORK OFFICE

It is assumed that, because of the central role of fundraising, the proximity to federal government agencies, including Statistics Canada, libraries and the Association of Universities and Colleges of Canada, the Network office would be located in the Ottawa region. A campus location would be ideal.

8. BUDGET

The budget plan for the first five years of the Network assumes that all initial monies received from the Centres of Specialization Fund will be committed by March 31, 1985. The total grant requested is $613,000.

Programmatically, this budget assumes that in the first year of Network operations, all capital and practically all operating monies come from the Secretary of State. Since it is necessary to commit programs for at least a two year duration, a significant portion of the operating monies needed in the second year will also be from the initial grant. In effect, two-thirds of the grant will be spent in the first year and the remaining one-third will be already committed by the end of the grant period.

Fundraising is expected to be most successful during the second year as Network programs begin to amass results which tangibly prove the viability of the concept. Hence, in the third year the Network will operate with funding granted from traditional research support sources and from revenue generated. Also, as the Network begins to prove its worth, it is expected that host institutions will provide revenue in cash and in kind, e.g., in the form of shared use of hardware. On the expense side, it is anticipated

that once programs are established and running the costs associated with start-up will sharply decline.

ESTIMATED INCOME AND EXPENSES

INCOME ($000)

	1984/5	85/6	86/7	87/8	88/9	NOTES
Centres of Specialization	409	204				committed by 1985-03-31
Other	10	50	150	150	160	foundations and revenue
Institutional		25	50	50	60	support from institutions and agencies
Total	419	279	200	200	220	

OPERATING EXPENDITURES ($000)

Infrastructure	160	160	100	75	75	
Network Operations	44	44	45	45	45	
Programs	50	50	55	80	100	expenses related to one program
Total Operating	254	254	200	200	220	

CAPITAL EXPENDITURES ($000)

Network Hardware	165	25	0	0	0

9. PARTICIPANTS

The Network program will be carried on in many centres across the country. However it is expected that, given the several institutions which have developed specialization in certain fields, the Network will have a number of nodes of excellence. The following are examples of these specializations.

- Distance Education and Technology
- Teaching and Learning
- Manpower Studies
- Accessibility
- Governance and Administration
- Institutional Research
- University Management
- Student Issues and Characteristics
- Community College Developments
- Institutional and System Planning
- Professional Education

At the centres, accomplished academic and government researchers will be the individuals most active in the Network. However it is expected that the Network will become a significant vehicle to enhance the graduate training of students engaged in research on higher education.

Practitioners working in government departments across the country and in various other institutions and private organizations will benefit from access to the Network. This may turn out to be especially true of the more informal programs offered by the Network such as messaging and electronic notice board activities. These types of services allow practitioners to put issues and questions before all participants. Participants will respond according to their interest. This sort of informal activity will tend to encourage people of common interest to identify each other and to communicate.

10. RATIONALE FOR PROPOSAL

The most direct reason for the preparation of this proposal was the identification by the Honorable Serge Joyal, Secretary of State, of the need for information to support planning in postsecondary education. Moreover, it seems that many factors are coming together to make the notion of a computer based network practical. The technology is available in Canada. The Network will directly address federal objectives and concerns in postsecondary education. Many recommendations of the Commission on Canadian Studies are sympathetic to this solution. The MacDonald Royal Commission

emphasize in its first report (Macdonald, 1984) on education and training, including "Choice 28" on technology in education. Finally, there is a long and rich series of attempts to formulate other national organizations with similar objectives. In this final section the background is highlighted and references made to three appendices which contain further elaboration.

10.1 Objectives of Federal Programs Supporting Postsecondary Education

In his National Universities Week Address, Honorable Serge Joyal noted that a major step in making known the goals of the Government of Canada was the recent formulation by the Secretary of State of the ten national objectives that are served by federal support to postsecondary education. The Canadian Higher Education Research Network will contribute to these national objectives of federal programs that support postsecondary education as articulated by the Secretary of State in 1982 and listed in Appendix 1. That is, each of the several Network programs will be structured so that results will have relevancy to the following objectives:

1. General support.
2. Educational opportunity.
3. Mobility.
4. Employability.
5. Research.
6. Official languages in education.
7. Canadian understanding, citizenship and cultural identity.
8. International relations.
9. Federal direct schooling.
10. Need of the federal government as an employer.

The Secretary of State announced further in his National Universities Week address that another step was being taken to strengthen the base of national statistics related to education. He said "... new information will support the planning of both orders of government and the postsecondary community....A strengthened data base will allow a much better understanding of the impact of existing programs and will allow a much more careful assessment of the possible impact of changes in those programs and policies" (page 15). He went on to say that "various

initiatives of the Government of Canada to improve information relating to National aspects of postsecondary education and to our programs and policies of support should be accompanied by structured means of receiving information on the problems and needs of the postsecondary community and by mechanisms for coordinating the responses of the two orders of government. It is especially important in a time of restraint that all parties work in cooperation to ensure that scarce resources are being used as effectively as possible". The proposal for a Canadian Higher Education Research Network is specifically formulated so that the results of research projects will provide information that will support the planning of both orders of government as well as the other elements of the postsecondary sector. The proposed Network with its many centres across the country will be structured to ensure that it is able to articulate effectively with the many governmental and institutional organizations producing and needing postsecondary education information.

10.2 Recommendations of the Commission on Canadian Studies

Many of the recommendations in Some Questions of Balance address needs and circumstances which underly the rationale for the proposed Canadian Higher Education Research Network. These selected recommendations are listed in Appendix 2. The Canadian Higher Education Research Network programs may facilitate realization of various recommendations and will not be in conflict with, nor unnecessarily duplicate, the efforts of any implementation of the Symons-Page recommendations. The programs of the Canadian Higher Education Research Network will be sufficiently flexible and will be academically managed by project steering committees so that activities will be directed to real problems and sensitive be to changing circumstances.

10.3 The Long Standing Need in Canada

Proposals for a national office of education and efforts to promote a national bureau of educational research, oriented primarily to school education, can be traced back into the last century. The idea of a national agency for research on higher education has its roots in these proposals.

Appendix 3 traces the continuing efforts, since 1970, to establish a formal network of researchers which would provide background information and creative suggestions to assist planning and management of all aspects of post-secondary education in Canada.

10.4 CSSHE Submission to MacDonald Royal Commission

In its submission to the Royal Commission, CSSHE noted that the most important stage of educational research and evaluation is putting the results to work in the form of improvements to the effectiveness of the system. Here the diffuse manner in which Canada conducts research in this field is a serious problem. It will not be enough to increase the amount of research carried out. Arrangements must also be made to provide a more consistent focus of effort and analysis.

Research must lead to systems, programs, techniques and information that are truly useable by educators, institutions and government decision makers in critical areas of planning and management. Thus, given the geography and politics of Canada, the economics of the times and the breadth of the knowledge base that will have to be made practically available, it is reasonable to look to information technology to help address some of the challenges and opportunities. The activities necessary to generate and to disseminate useful research results will include:

1. Gathering new data.
2. Gathering and organizing the valuable products of studies across the fields and around the country.
3. Determining missing links in our understanding, capabilities and information.
4. Encouraging research and development in areas of urgent need which are not being addressed in our Canadian context.
5. Disseminating usable research results, information and other decision support to postsecondary education.
6. Evaluating the useability and effectiveness of research results.

As a practical suggestion to ensure that both the necessary research in postsecondary education is done, and secondly, that Canadian postsecondary

education benefits as much as possible from the study of higher education done anywhere in Canada or elsewhere, CSSHE offered the following recommendation:

That a postsecondary educational study organization be established with the objective of facilitating research and of putting the results of research in postsecondary education to work in Canada.

The organization should have some financial and policy independence from governments in meeting its fundamental research, development and dissemination tasks but ought to be responsive to the practical needs of governments, industry and institutions.

Advances in information technology, existing centres of advanced study, the excellence of Canadian communications all suggest the possibility of using many venues for the proposed organizations activities at institutions, government agencies and industries across the country.

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APPENDIX 1: NATIONAL OBJECTIVES OF FEDERAL PROGRAMS THAT SUPPORT POSTSECONDARY EDUCATION

1. General support objective: to help to maintain and strengthen the post-secondary capacity throughout Canada required to respond to the individual learning and development aspirations of Canadians and the needs and opportunities of Canadian society.

2. Educational opportunity objective: to facilitate the access of all qualified and interested Canadians to formal learning by reducing barriers due to socioeconomic status or to membership in groups that are not fully served by the existing educational system, and to reduce financial hardship resulting from participation in the education system.

3. Mobility objective: to minimize any barriers that might prevent Canadian post-secondary students, teachers and graduates from studying, training, or working wherever they wish in Canada.

4. Employability objective: to promote a post-secondary capacity, in those areas of post-secondary activity related to the provision of occupational skills required by the Canadian labour market, which is responsive in providing Canadians with the opportunity to obtain the qualifications required for occupations critical to national economic growth and for occupations characterized by a high degree of inter-regional and international mobility.

5. Research objective: to encourage the development of researchers and research knowledge and capacity in the post-secondary education system, consistent with the general research and development needs of Canadian society or in order to provide solutions to problems arising in areas of national concern.

6. Official languages objective: to provide opportunities for Canadians to increase their knowledge of Canada's official languages through formal learning and for members of a minority official language group in each region to be educated in their own language.

7. Canadian understanding, citizenship and cultural identity objective: to increase through formal learning the knowledge and understanding Canadians have of themselves and their environment, with particular concern for the cultural diversity of Canada, and to stimulate and maintain a sense of Canadian citizenship.

8. International relations objective: to promote Canada's international interest in matters related to education including: provision of links between the education systems of Canada and of other countries; promotion of a better knowledge abroad of Canada and its people; encouragement of international studies in Canada and of international joint research and scholarly activities; and provision of policies and programs relating to foreign scholars and students in Canada.

9. Federal direct schooling objective: to develop knowledge, skills and critical capacity among groups whose education is a federal responsibility,

through financing and/or management of schools and other educational establishments.

10. Needs of the federal government as an employer objective: to promote an adequate supply of personnel with skills, knowledge and capacities needed for an effective public service, including appropriate official language capacities.

("Federal-Provincial Consultation on Post-Secondary Education", opening statement by Hon. Gerald A. Regan, Secretary of State, Toronto, Ontario, July 9, 1982.)

APPENDIX 2: RECOMMENDATIONS OF THE COMMISSION ON CANADIAN STUDIES CITED IN SUPPORT OF THE RATIONALE FOR A CANADIAN HIGHER EDUCATION RESEARCH NETWORK

Page 20 - on the need for adequate statistical information.
Recommendations 1, 2, 3, 4, 5 and 6.

Page 74 - on faculty citizenship questions.
Recommendation 12.

Page 129-131 - on the need for highly qualified graduates.
Recommendations 1, 2, 3, 7, 8, 9, 10, 12.

Page 168 - on the age structure of the professoriate.
Recommendations 6, 7, 8, 10.

Page 211 - on the status of women in Canadian academic life.
Recommendations 4, 6, 7, 8, 15, 20.

Page 248 - on foreign students.
Recommendations 2, 16, 17, 18.

(Some Questions of Balance, Report of the Commission on Canadian Studies, Thomas H.B. Symons and James E. Page, 1984.)

APPENDIX 3: EVOLUTION OF THE NETWORK PROPOSAL

The notion of a national organization of research in higher education has a long and interesting history (Sheffield, 1979). However, there have been since 1970 a number of specific suggestions which are helpful in understanding the context of the current proposal. For example, in 1971, it was recommended that a Canada-wide network of information-gathering systems be established to collect comprehensive and comparative information on postsecondary education to support policy formulation and management decision making. (Sheehan, 1971).

In March 1972, about one hundred people interested in higher education planning and management attended a three-day seminar hosted by The University of Calgary and sponsored by the Association of Universities and Colleges of Canada. Those attending the seminar, including representatives of thirty-two AUCC member

institutions, voted to set up a task force on university information systems in Canada and asked AUCC to implement the resolution.

On June 1, 1972, a meeting was held in Ottawa attended by forty people representing:

- Council of Ministers of Education
- Canadian Association of University Teachers
- Ontario Confederation of University Faculty Associations
- Secretary of State of Canada
- Ministry of State for Science and Technology
- Statistics Canada
- Association of Universities and Colleges of Canada
- Association of Registrars of the Universities of Canada
- Canadian Association of University Business Officers
- Association of Atlantic Universities
- Conférence des recteurs et des principaux des universités du Québec
- Council of Ontario Universities
- Comité pour l'élaboration d'un système d'informatique de gestion universitaire
- Western Universities Task Force on Information Needs and Systems

This meeting established a small coordinating committee, the Coordinating Committee for Information Systems in Higher Education in Canada, which prepared a proposal to establish a small independent, non-profit organization under the policy and technical direction of an independent board whose members represent institutions, agencies and governments. The primary job of the proposed organization was to improve postsecondary education management by encouraging better information for decision making at all levels. The proposed organization would provide a means for cooperative evolution of standards and procedures which would facilitate the exchange of information among institutions as well as improved communication of comparative information provincially, regionally and nationally. The Coordinating Committee consisted of Dr. C.B. McKay, Executive Director, Association of Universities and Colleges of Canada, Dr. J.B. Reed, Director, Operational Research, Alberta Department of Education, representing CMEC, Dr. D.C. Savage, Executive Secretary, Canadian Association of University Teachers, and Dr. M. Wisenthal, Director General, Institutions of Public Research Branch, Statistics Canada. The Committee was chaired by Bernard S. Sheehan.

The idea of a national agency for research in higher education was advanced by Max von Zur-Muehlen in October 1977, in a paper to the AUCC Committee of Executive Heads and then later in the first of the AUCC's series of Policy Studies (Porter, 1977). More recently the idea was suggested by the Canada Council's Commission on Graduate Studies in the Humanities and the Social Sciences (Healy, et al, 1978).

The argument for such a body was that existing agencies were not doing the needed policy-oriented research on national issues to which higher education is or should be related, and, for various reasons, the existing agencies were unsuited for the task. The desirability of a completely independent agency also has been advocated. Concerning funds, it was suggested that they might be provided by SSHRCC, by one or more foundations, or by the federal and provincial governments.

Intermittently during 1978 a small group of interested individuals [J. Holmes, M. Oliver, J. Porter, M. Porter, E. Sheffield, D. Steedman, M. von Zur-Muehlen and M. Wisenthal] in Ottawa met to explore the idea of an institute for research on higher education as proposed in the AUCC Policy study. The authors of that study argued that there is needed in Canada "an agency that would provide an overall view, that would do research, define problems on a national level, identify policy vacuums and provide the CMEC with the necessary information to make recommendations to their respective provincial governments." They recommended "that a National Institute of Higher Education be established, to be funded by the federal and provincial governments, which would use such resources as those of Statistics Canada to conduct research to define areas of concern, and to provide facts and analyses of them to the Council of Ministers of Education, Canada." (Porter, 1977).

CSSHE review of present resources for policy-oriented research and analysis of national issues in higher education reveals that much is being done in a variety of settings but that no one agency gives sustained, comprehensive attention to this particular task or to monitoring, from a national perspective, what is being done by the many agencies involved. (See Sheffield, 1981). It seems evident that the services of Statistics Canada are basic to any such operation. Of the other agencies the ones with most potential in this field are the Institute for Research on Public Policy, the Department of the Secretary of State and the Council of Ministers of Education, Canada, yet for one reason or another their potential is not being fully realized.

Sheffield noted in 1979 that one could outline ideal specifications for a new agency - an institute for research on post-school education - but even if it were established it would not be able to assume the total responsibility. It seemed to him, therefore, that:

1. All interested agencies should be encouraged to make their contributions. More than that, they should be stimulated to exploit their untapped potential, which in some cases is great.

In addition, Sheffield offered a few specific suggestions.

2. Each agency involved could evaluate its own performance, say annually, taking account of course, the limitations imposed by the agency's mandate.

3. Statistics Canada could encourage more use of its data by organizing workshops to acquaint researchers with its resources.

4. The Department of the Secretary of State and the Council of Ministers of Education, Canada should be encouraged to share more of the results of their research publicly and also to stimulate policy-oriented research on education by other agencies - in short, to give leadership to such activities.

5. The Institute for Research on Public Policy should be encouraged to add education to its fields of research, or at least to undertake and publish an annual critical review of policy-oriented research on education, including but not confined to higher education.

6. More individual research workers, especially in the universities, could be involved in policy-oriented research on the initiative of national agencies able to identify problems and arrange for funding.

7. The possibility of establishing a new institute for research on post-school education, independent of government and of academic interest-groups, should be explored. Preferred sponsorship would be a university or co-operating universities in the national capital region.

APPENDIX 4: LIST OF POSSIBLE MONOGRAPHS IN POSTSECONDARY EDUCATION

1. The Structure and Governance of Higher Education

Probes the roles and potential relationships of existing postsecondary, governmental, and industrial organizations. Reacts to current urgent questions about the way higher education is structured and the future governance of its institutions.

2. Access to Postsecondary Education

Analyzes the basis on which higher education is supplied; questions the extent to which present-day provision rests on student demand, drafts alternative policies for reaction to future trends in demand, and brings to light widely differing means of access.

3. Patterns of Mobility

Examines current practices of and opportunities for students, teaching staff, and graduates to be free to attend school, work, or train wherever they wish in Canada. Explores new arrangements between provinces.

4. Postsecondary Education and Canada's Evolving Labor Market

Focusses on the manpower demands that higher education could meet more effectively and pursues the issues raised by any progress in that direction, notably the question of resource allocation in respect of economic objectives.

5. Contribution of University Research to Economic Development

Draws on hitherto published and unpublished studies and statistics as well as on wide-ranging experience in industry, government, and education, and, following analysis of the principle functions of research, makes strong recommendations for alternative future directions. Universities and the development of knowledge.

6. Minimizing Barriers to Bilingual Education

Explores and evaluates alternative means for increasing opportunities to learn both official languages through academic exchange programs, work-study sessions, and other special regional and inter-provincial provisions aimed at

both minority and majority official language groups.

7. Distance Education: Past, Present and Future

Critiques existing development in distance education through correspondence programs, open universities, "outport" programs, "extension" programs, and networks. Analyzes students' needs, new communications systems, and costs with regard to socio-economic objectives.

8. Assessing the Damage: Institutional Change

Puts the case for the precise and purposeful adaptation that must be undertaken in higher education if change is not to turn to decline. Details how colleges and universities should plan not only for survival but also for revival. How much postsecondary education do we need? How should it be controlled? How fast can it be changed?

9. Excellence in Diversity: In Search of a Strategy

Develops a strategy whose main theme is the immediate need to preserve and increase diversity. Identifies all major issues that will be on the policy agenda in the next five years. Assesses likely resources for and public attitudes towards programs directed at specific populations.

10. Retraining Needs of Part-Time Students

Surveys enrolment trends of workers returning to school. Identifies major issues related to workers seeking specific skills in given sectors. Argues the value to colleges and universities of monitoring more closely the relationship between needs and course offerings.

11. International Role of Canadian Universities

Appraises the contribution of postsecondary education to worldwide recognition and understanding of Canada. Sets the case for Canadian universities to help find solutions to problems such as poverty, armament, and lack of qualified manpower in underdeveloped countries.

12. Analytical Support to Decision Makers

Shows how to gather and use data to improve institutional effectiveness and decision making. Illustrates various approaches to institutional evaluation. Outlines techniques for conducting studies on institutional components such as program evaluation, student attrition, and budget reduction.

13. Postsecondary Education in the Age of Telematics

Describes important advances in computer and communication technologies. Considers their implications for instruction, planning, research, libraries, and other areas of college and university operations. Illustrates numerous applications of such technological developments. Discusses postindustrial postsecondary education.

14. Teaching, Learning, and Academic Performance

Penetrates the relationship between academic success and other complex factors such as teaching methods, academic standards, and special needs of individual students. Establishes the link between participation rates and the appropriate means leading to lower attrition rates. Evaluation and effectiveness of institutions, programs and personnel.

15. Articulation Between Colleges and Universities

Discusses the respective role of types of institutions. Raises the questions related to the structure of systems and the adjustments that must be made to better fulfill their mission. Articulation between secondary and postsecondary systems.

The proposed titles have not been listed in any order of priority since the selection of topics will be done by the project steering committee appointed by the Network board.

Canadian Society for the Study of Higher Education

La société canadienne pour l'étude de l'enseignement supérieur

April 26, 1985

Announcement on the Establishment of the Canadian Higher Education Research Network (CHERN) by the Canadian Society for the Study of Higher Education and the Faculty of Administration, University of Ottawa

The Honourable Walter F. McLean, Secretary of State of Canada, recently announced under the Centres of Specialization Fund the creation of:

> "The Canadian Higher Education Research Network, to be established by the University of Ottawa in collaboration with the Canadian Society for the Study of Higher Education, receives $300,000. This will allow for the creation of a network to link centres of research on post-secondary education and individual researchers located across Canada. The network will exploit new information technologies to produce and disseminate research findings. The network will give priority to research areas of interest to the student population such as accessibility."

The objective of this national network is to promote research on Canadian Higher Education in such a way as to forge new ties

between researchers in many different disciplines, as well as to electronically link the Higher Education Community with practitioners in government, industry, and other institutions across Canada. This joint venture will thus provide a bilingual national forum for the exchange of ideas and research.

This network (CHERN) will undertake a wide range of activities, including the publication of monographs, working papers, and feasibility studies, as well as the organization of conferences, symposia, and workshops.

Community College and University Education is both an industry and an area of continuing social concern in Canada. CHERN hopes to serve its community in assisting the public and private sectors to identify more clearly their educational priorities, and to communicate these requirements to its constituents and society at large.

The Secretariat of CHERN is located at the Faculty of Administration:

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